

A photograph of a modern, two-story town building with a mix of orange and blue walls and large glass windows. The building is surrounded by lush green trees and manicured landscaping, including flower beds with red and pink blooms. In the foreground, there is a stone monument with the town's crest and the words "TOWN OF HALTON HILLS".

Town of Halton Hills 2019 Corporate Energy Consumption and Activities Report

July 2019

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1. Background

The Town of Halton Hills Corporate Energy Plan was approved in 2014. The 2014 plan included estimates of energy consumption in the Town's facilities, and set an energy intensity reduction target of between 13-17% and an emissions reduction target of 20% from a 2011 baseline year. It was scheduled to be updated in 2019.

This report evaluates the implementation of the 2014 plan and updates the 2011 energy and emissions inventory in order to assess the Town's progress towards its energy and emissions targets. In addition, while the 2014 plan tracked energy and emissions sources covered by the reporting requirements contained in Ontario Regulation 397/11, the current report expands the scope of sources covered to include all significant energy uses (SEU) associated with the Town's operations.

The energy and emissions data covered here updates the Town's energy and emissions inventory with data for the years 2012-2018 and revises the energy and emissions data from the 2011 baseline to include the additional energy sources not covered in the initial plan and inventory. The energy uses covered in this report include all facilities which are "heated or cooled and the public agency is responsible for paying the utility bills" as required by the province's mandatory reporting. It also includes SEUs such as street lighting, fleet fuel use, and energy and emissions associated with employee commutes. All SEUs are then projected to 2030 based on two scenarios, a high-growth and a low-growth future.

This report also includes an assessment of the state of implementation of the 2014 plan. It includes a summary and update to information included in the Town's 2018 **80BY50 Report**, a survey of key stakeholders within the Town's operations that sought input on how energy management impacts their roles, and an estimate of the energy and emissions impacts of specific, quantifiable actions undertaken through the plan, and provides some context relating to significant developments within the Town's operations over the next 5 years that will impact energy and emissions during that period.

By updating the Town's energy and emissions inventory and evaluating the implementation of the 2014 plan, this report also serves to meet the requirements of Milestones 4 and 5 of the Partners for Climate Protection Program.

2. Corporate Energy Consumption Overview

The 2019 Corporate Energy Consumption and Activities Report provides a summary of the Town's 2018 annual energy consumption, GHG emissions, and all energy costs associated with the Town's operations. In addition to the report requirements mandated by the *Electricity Act*, information on all energy-consuming infrastructure (e.g., street lighting and sports fields) as well as fleet fuel has been included to provide a complete picture of energy needs for municipal operations. This report also includes modelled energy and emissions associated with employee

commutes; this is the only energy source that it not based on actual billed energy use, and as a result estimates have a higher level of uncertainty.

Key highlights include:

- **The Town consumed just over 26 million “equivalent” kilowatt-hours (ekWh) of energy in 2018**, an increase 6.1 million ekWh, or a 30% percent from 2011. However, during this time, Town facilities expanded significantly, while the energy intensity of Town facilities decreased.
- **Total energy cost increased by approximately \$909,000 compared to 2011 a 70% increase.** During this period increases in electricity, natural gas and diesel prices have been slightly offset by a reduction in the price of gasoline.
- **Efficiency measures have saved the Town approximately \$171,000 per year in energy costs.** If Town facilities currently operated at the energy intensities of 2011, the Town would spend an additional \$171,000 on energy per year.
- **Despite significant increases in energy consumption, energy-related greenhouse gas emissions in 2018 were only 8% percent higher in 2018 than 2011.** This was a result of a combination of the energy efficiency measures implemented by the Town and the Provincial phase out of coal power generation.
- **If emissions offsets associated with renewable energy projects on Town facilities are included the Town’s emissions are 4% lower than they were in 2011.** Additional actions will have to be undertaken in order to ensure that the Town meets it emissions targets in the future.

2.1 Methodology

Where possible, this report uses actual billed consumption to calculate all energy consumption and costs. The Town uses EnergyCAP energy management information system to track energy consumption in facilities using utility bills for Natural Gas and Electricity. Utility bills have also been used to track street and traffic lighting. Fleet fuel consumption is tracked separately by the Town – the Town is currently investigating implementing a fleet fuel tracking software to centralize this function.

Because it was not possible to acquire actual fuel consumption associated with employee commutes, energy and emissions for this sector was modelled using robust assumptions. Distances travelled were estimated using origin-destination data for all employees, and a 9L/100km average passenger vehicle fuel economy.

Energy cost estimates reflect actual billed rates, except for natural gas and electricity costs from years 2012-2014, which were estimated using Ontario Energy Board data on historical average energy rates. Gasoline and diesel prices for 2011-2012 were estimated using Government of Ontario’s historical Fuel Price Survey data.¹

¹ <https://www.ontario.ca/data/fuels-price-survey-information>

GHG estimates used in this report were derived from emissions coefficients in Environment Canada's 2018 National Inventory Report. Emissions estimates used in the 2011 inventory have been revised to reflect updated GHG intensity factors for the Ontario Grid.

3. Target and Goal Update

The 2014 Corporate Energy Plan was aligned with the Town's Integrated Community Sustainability Plan's goal to "foster a culture of conservation by preparing energy plans focusing on efficiency and renewable power generation" as well as existing initiatives like the Corporate Sustainable Building Policy.

The 2014 plan addressed energy use in Town buildings, technologies, and fleets – as well as people, processes, and information. The plan drew on information from three key sources: interviews, surveys, and meetings with Town staff; a review of Town policies, plans and programs; and a review of best practices in other jurisdictions. The first step in the process was to identify and define the preferred state/vision of energy management for the Town. This was accomplished through interviews with key Town staff and through two strategic planning sessions held with members of the Technical Advisory Committee and the Steering Committee. The second step involved defining the present state of energy use in the Town by reviewing the Town's energy management practices. The third step involved developing technical and organizational actions to assist the Town in moving from its present to its preferred state of energy management.

Technical actions were identified through ASHRAE Level 2 audits conducted on seven Town facilities of a variety of archetypes so that measures could be extrapolated across all Town buildings. The organizational actions, which relate to corporate processes, were identified through interviews, two strategic planning sessions, a corporate-wide survey, and a jurisdictional review of best practices.

The actions are grouped in the CEP according to the following categories:

- **Organizational commitment** – measures related to policies, targets, and resources required to enable energy management and the other actions;
- **Existing buildings and equipment** – measures, both technical and policy based, that impact existing buildings and equipment;
- **New buildings and equipment** – measures, both technical and policy based, that impact new buildings and equipment;
- **Monitoring and tracking** – measures related to evaluating, monitoring, and verifying energy data;
- **Communication and engagement** – measures related to encouraging behavioural modifications to save energy;
- **Fleets** – measures related to Town fleet vehicles that reduce energy consumption; and
- **Procurement and renewables** – measures related to the procurement of energy and renewable technologies.

The 2014 plan set the following goals:

- 13% to 17% improvement in energy intensity; and
- 16% to 20% reduction in greenhouse gas emissions.

Energy intensity at Town facilities has been reduced by 6%, which does not meet the 2014 intensity target range. The Town has not met the emissions reduction targets established in the 2014 plan, although the extent of the gap between current emissions and the target depends on what sources are included, as summarized below:

Table 1. CDM Plan Target Tracking

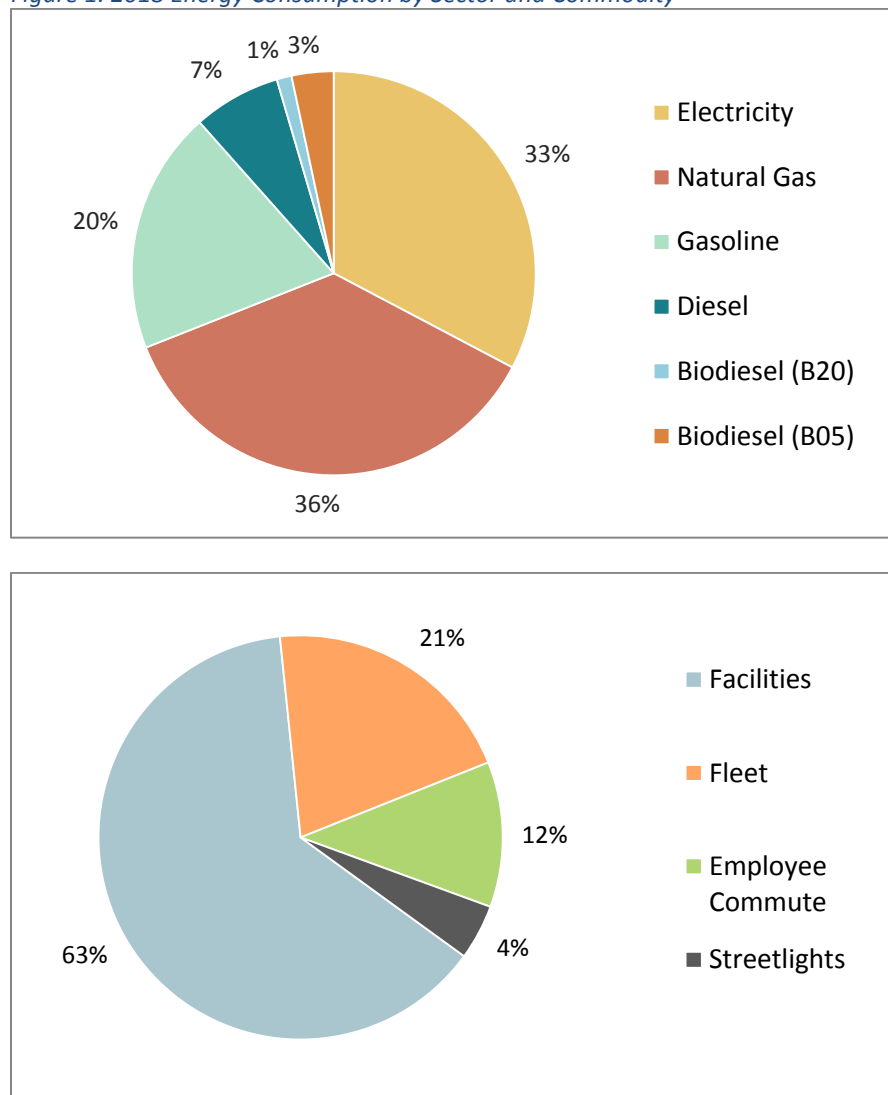
Performance Goal	Energy Intensity	GHG emissions
2014 Plan Target	Down by 13-17%	Down by 20%
2019 Outcome (Facilities only)	Down by 6%	Up by 3%
2019 Outcome (all sources)	NA	Up by 8%
2019 Outcome (all sources with offsets)	NA	Down by 4%

4. Updated Energy and Emissions Inventory

4.1 Corporate Energy Consumption

As described above, the updated energy and emissions inventory for the Town of Halton Hills has been expanded to track all significant energy uses, including the addition of streetlights, fleet, and employee commutes. Where possible these sources have been added to previous inventories using actual historical energy consumption data. Where actual consumption data was not available, previous years have been estimated using robust assumptions. The Town's energy consumption is primarily benchmarked against the 2011 baseline year.

Figure 1. 2018 Energy Consumption by Sector and Commodity



In 2017, facilities were 63% of total energy use, with fleet (21%) and employee commutes (12%) also constituting significant sources of energy use. Street lighting makes a relatively small portion of the total Town energy use at 4%.

Table 2. Consumption by Sector Comparison 2011-2018 (ekWh)

Sector	2011	2018	Variance	% Change
Facilities	12,192,691	16,950,368	4,757,677	39%
Fleet	4,122,297	5,222,059	1,099,762	27%
Employee Commute	2,662,535	2,912,548	250,012	9%
Streetlights	1,143,674	1,093,732	-49,942	-4%
Total	20,121,197	26,178,707	6,057,509	30%

Table 3. Consumption by Commodity Comparison 2011-2018 (ekWh)

Commodity	2011	2018	Variance	% Change
Electricity	6,612,988	8,587,801	1,974,813	30%
Natural Gas	6,723,377	9,522,243	2,798,866	42%
Gasoline	4,278,337	5,100,962	822,625	19%
Diesel	1,547,192	1,839,690	292,499	19%
Biodiesel (B20)	392,453	313,022	-79,432	-20%
Biodiesel (B05)	566,851	880,932	314,082	55%
Total	20,121,197	26,244,651	6,123,454	30%

Figure 2. 2011-2018 Energy Trend by Sector

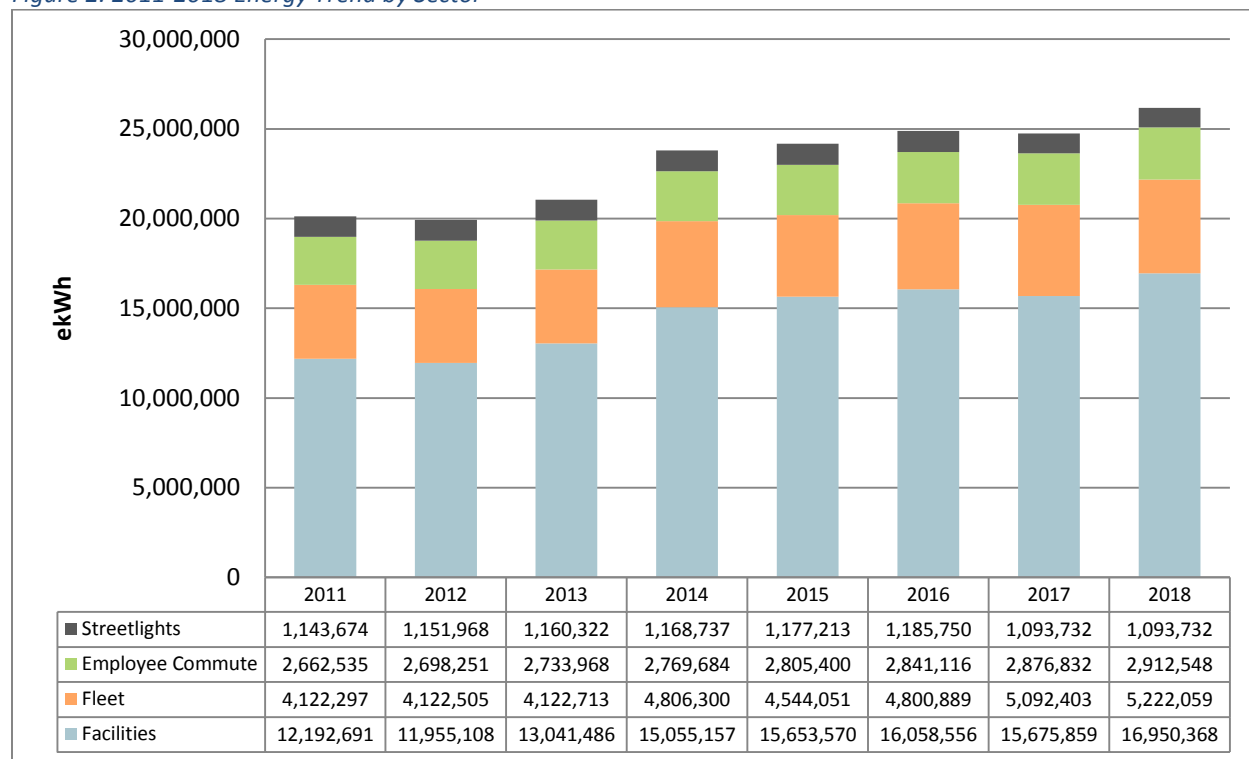
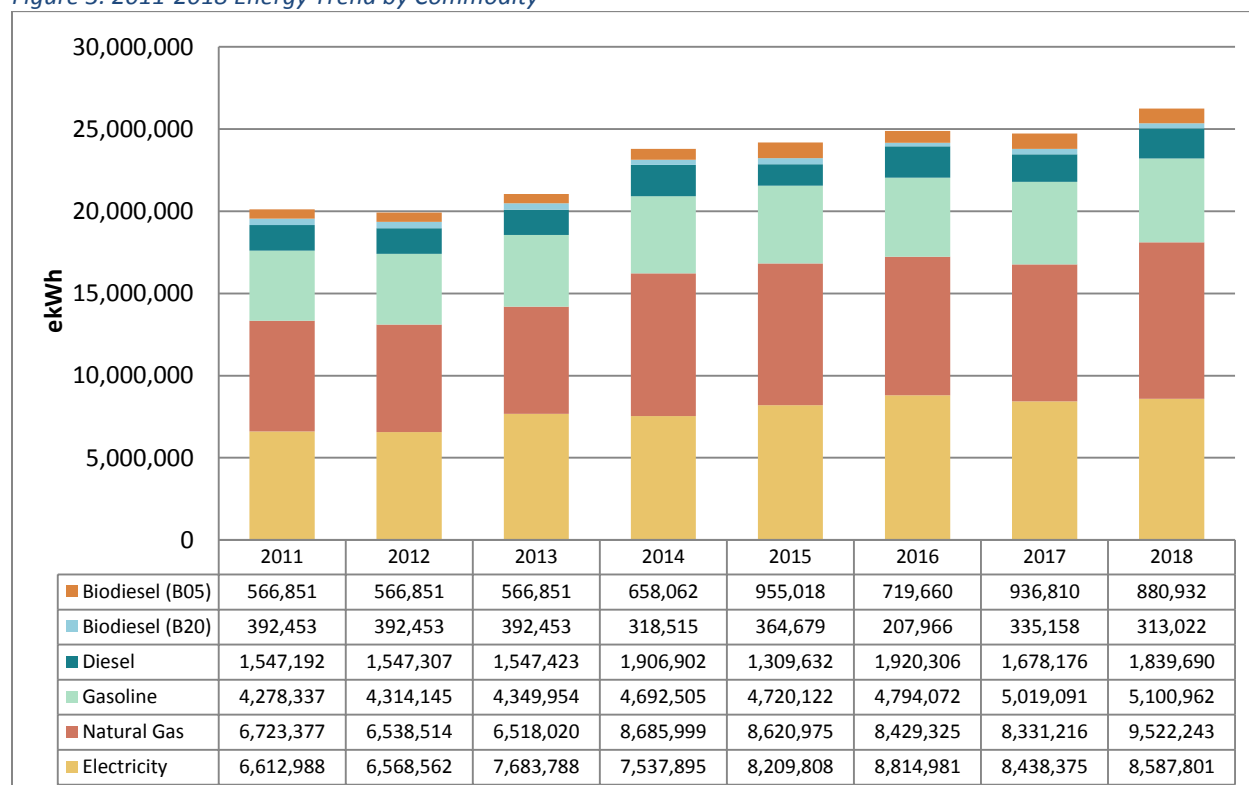


Figure 3. 2011-2018 Energy Trend by Commodity



In the period from 2011-2018 there has been a 30% increase in total energy consumption. This growth has been primarily driven by significant increases in the size of major Town facilities during this period. The five highest energy consuming buildings in the Town portfolio in both 2011 and 2018 were Mold-Masters SportsPlex, Acton Arena, Gellert Community Centre, Public Works Operations Centre, and the Town Hall; which make up 86% of the energy consumption associated with the Town's facilities. Of these facilities, the Robert C. Austin Operations Centre was completely rebuilt in 2015, with a 92% increase in floor space, a new ice pad was added to the Acton Arena in 2015, doubling the floor space, and the facility at Mold-Masters was more than doubled with two new ice pads added in 2012. This additional floor space in major energy using facilities has put significant upward pressure on the Town's energy consumption.

Nevertheless, energy increases associated with these significant additions to the Town's facility portfolio were offset by much more efficient construction and the implementation of energy efficiency measures. For example, the Robert C. Austin Operations Centre and Acton Arena respectively consume 37% and 29% less energy per unit of floor space compared to 2011. If energy intensity of Town facilities was the same as in 2011, the Town would currently use 2.87 million ekWh more per year, or a 45% increase in energy use between 2011-2018.

Table 4. 2018 Facility Energy Profile

Facility	Area (ft ²)	Electricity (kWh)	Natural Gas (ekWh)	Total energy use (ekWh)	ekWh/ ft ²
Mold-Masters SportsPlex	151,000	2,811,451	3,231,374	6,042,825	40.02
Gellert Community Centre	36,285	888,438	2,753,327	3,554,987	97.97
Acton Arena	92,000	1,284,171	1,507,718	2,791,889	30.35
Robert C. Austin Operations Centre	62,795	429,120	886,362	1,315,482	20.95
Town Hall	40,000	578,520	282,688	861,208	21.53
Halton Hills Cultural Centre and Library	50,500	709,560	33,658	743,218	14.72
District Two Station (Georgetown)	15,934	244,130	131,141	395,123	24.80
District One Station (Acton)	11,136	128,440	244,296	372,736	33.47
District Three Station - HHFD HQ	13,616	235,068	100,202	335,270	24.62
Cedarvale Community Centre	11,500	15,876	184,468	201,325	17.51
Acton Library Branch	9,000	118,784	20,264	139,048	15.45
Acton Yard - Equipment Depot	3,700	16,535	119,877	136,412	36.87
Prospect Park Pavilion	4,800	33,976	26,870	60,846	12.68
Total	502,266	7,494,069	9,522,243	16,950,368	391

In addition to these more efficient construction and operations practices in major facilities, there have been two significant additions to the Town's building portfolio. In 2011 the Town completed

the construction of the new Acton Library and in 2013 opened the renovated and expanded Halton Hills Cultural Centre and Library, both LEED certified facilities (Gold and Silver respectively) operating on low-carbon geothermal heating systems. Both facilities are among the lowest energy intensities in the Town's portfolio, while using significantly less natural gas than comparable facilities with traditional heating systems. For a detailed breakdown of energy consumption at town facilities see Table 4.

Because fleet, employee commutes, and streetlight energy use have not been tracked as closely over this period, the causes of increased energy consumption in those areas are less well understood than changes in facilities. Fleet energy consumption has increased by 27% during the 2011-2018 period, while the introduction of approximately 4,800 LED lamps has led to a 4% decrease in energy consumption from streetlights despite an increased number of lights.

4.2 Corporate Energy Cost

The Town purchases four energy types for its operations: Electricity, Natural Gas, Diesel, and Gasoline. In total, the Town spends just over \$2.2 million per year on energy. Despite being only 33% of energy use, electricity makes up 63% of energy costs. Because natural gas has remained relatively inexpensive, it is the lowest cost energy source at present. The new federal carbon pricing system, introduced on April 1st, 2019 should lead to increases in the price of natural gas, diesel, and gasoline, while electricity will be less heavily impacted due to the low-carbon nature of the Ontario electricity grid.

Figure 4. 2018 Energy Cost by Sector and Commodity

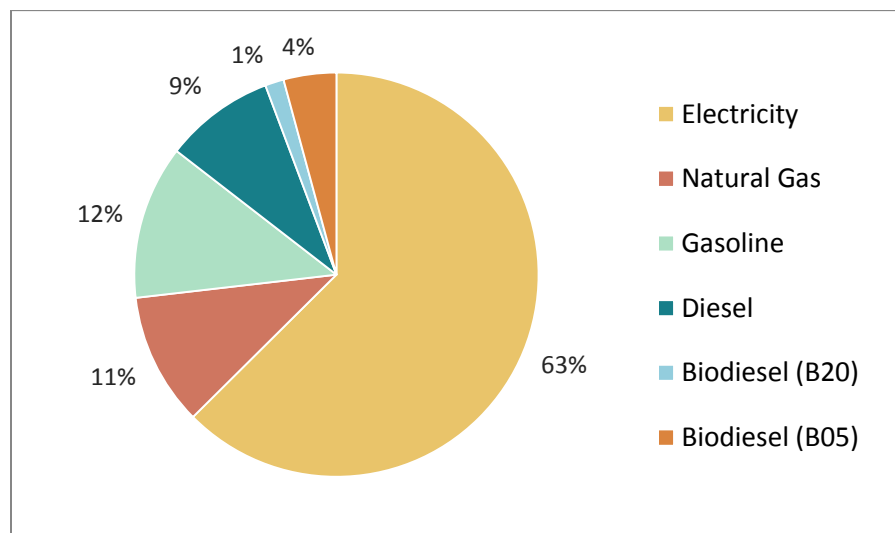
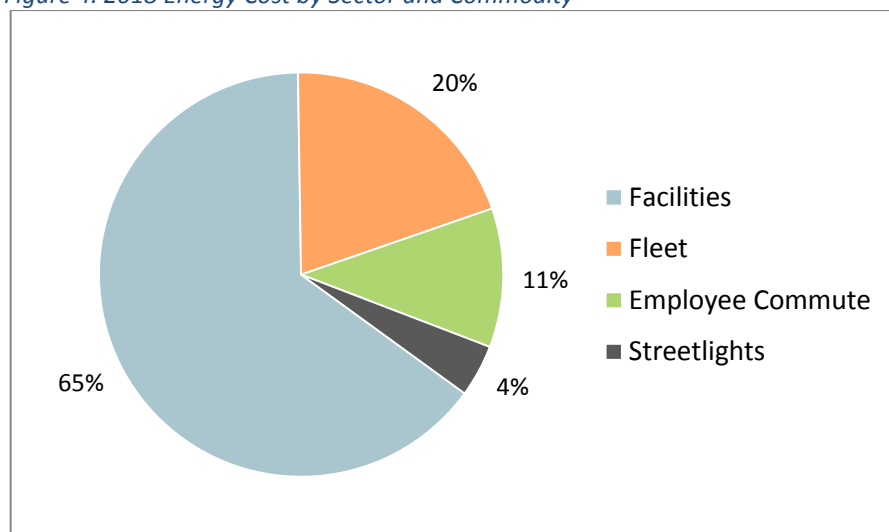


Table 5. Cost by Sector Comparison 2011-2018 (\$)

Sector	2011	2018	Variance	% Change
Facilities	764,907	1,522,687	757,781	99%
Fleet	508,874	626,616	117,743	23%
Streetlighting	129,019	186,083	57,064	44%
Total	1,402,799	2,335,387	932,588	66%

Table 6. Cost by Commodity Comparison 2011-2018 (\$)

Source	2011	2018	Variance	%
Electricity	746,017	1,461,095	715,078	96%
Natural Gas	147,908	247,675	99,767	67%
Gasoline	220,636	287,512	66,876	30%
Diesel	177,922	205,643	27,722	16%
Biodiesel (B20)	45,131	34,990	-10,141	-22%
Biodiesel (B05)	65,186	98,472	33,286	51%
Total	1,292,483	2,201,925	909,443	70%

Energy costs associated with Town activities have increased 70% over the period 2011-2018. This increase has been driven by rising costs for all commodities except gasoline. Electricity in particular has seen significant price increases over this period, which, combined with significant increase in electricity consumption, has led to a 96% increase in total expenditures on electricity. However, despite an overall 2% increase in electricity consumption, electricity costs have decreased by 5% between 2017 and 2018, due to a drop in electricity rates during this period.

Figure 5. 2011-2018 Energy Cost Trend by Sector

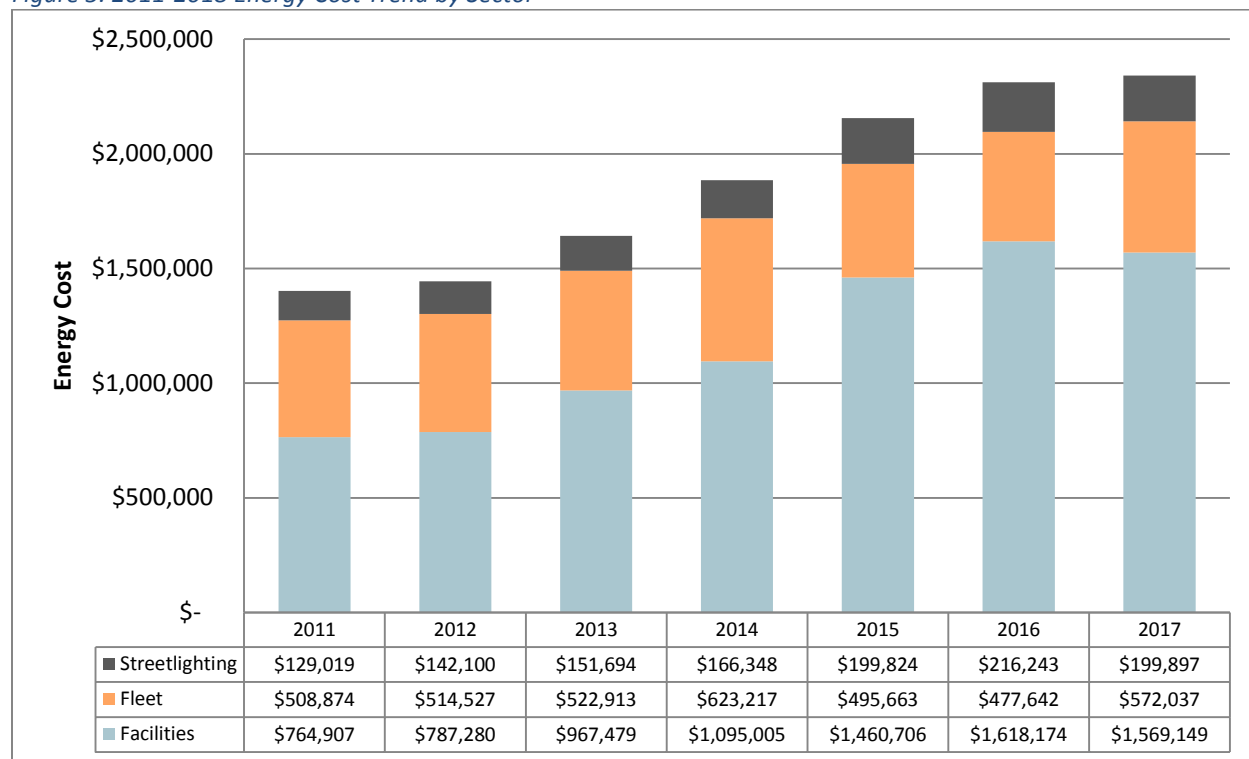


Figure 6. 2011-2018 Energy Cost Trend by Commodity

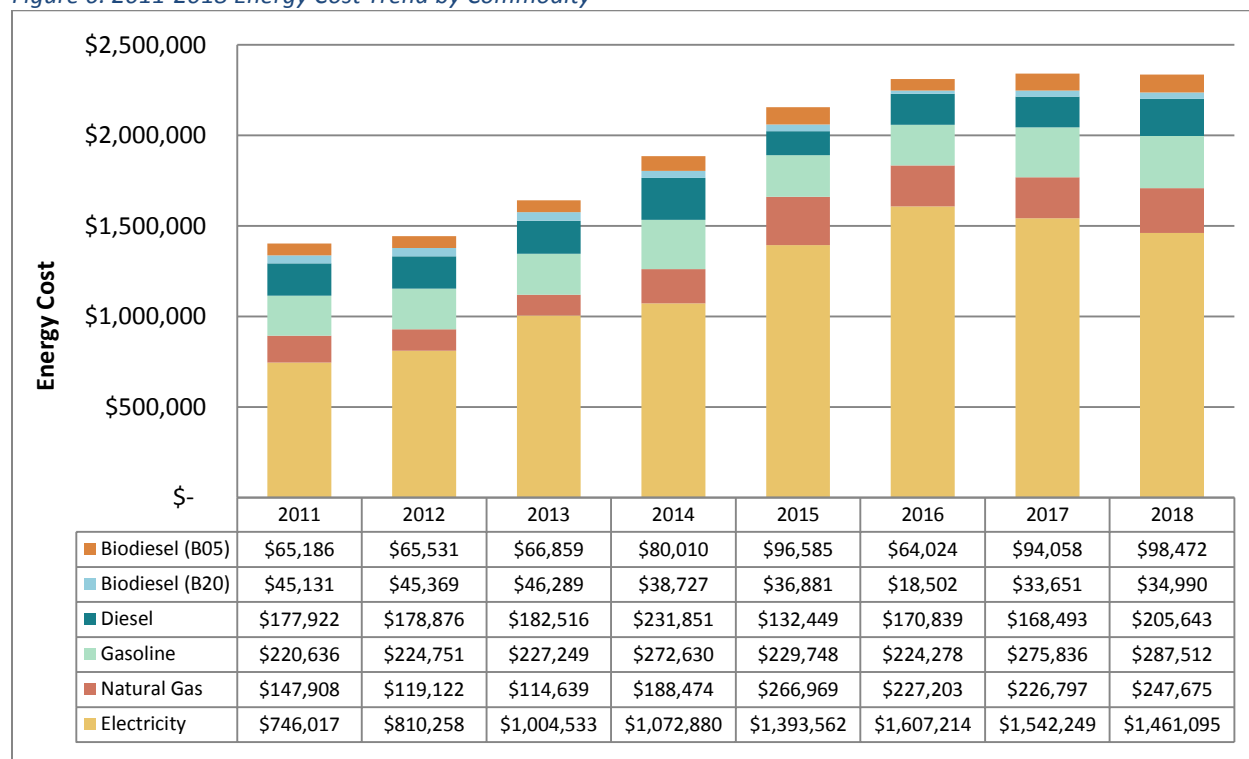
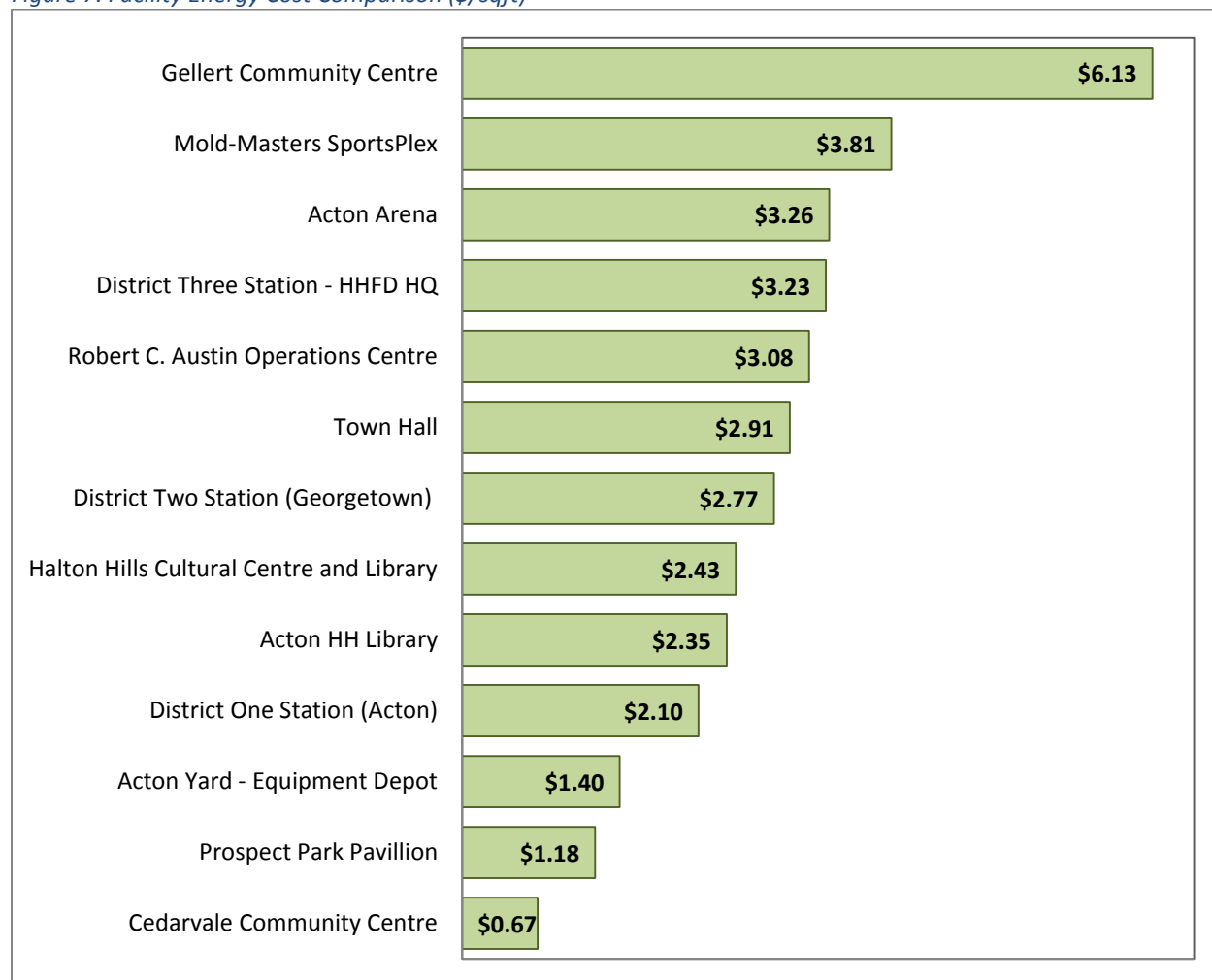


Figure 7. Facility Energy Cost Comparison (\$/sqft)

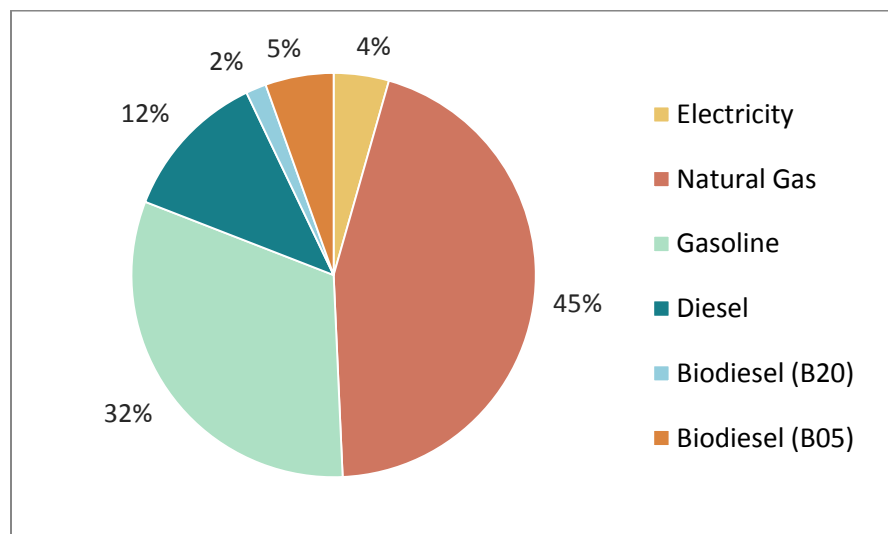
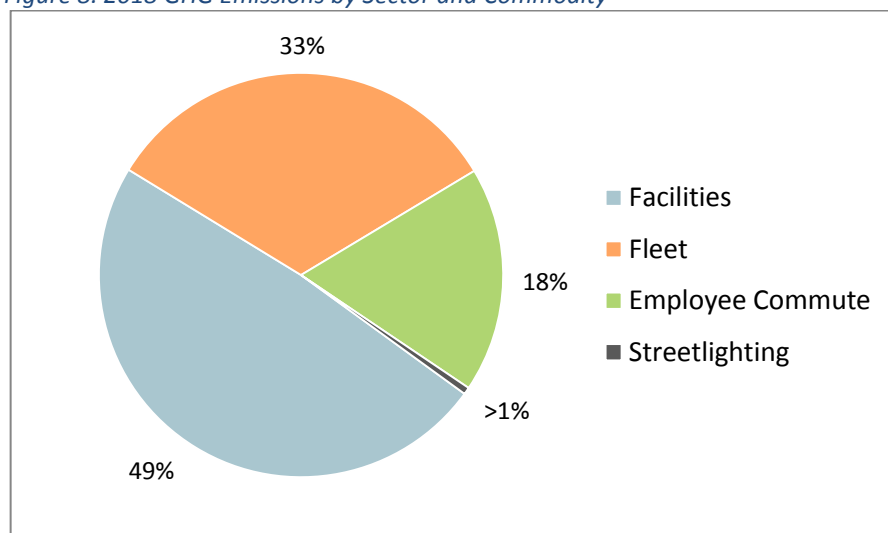
On a \$/sqft basis, Gellert Community Centre is the most expensive facility to run, costing just over \$6/sqft/year. The least expensive facility to operate was the Cedarvale Community Centre, however, that facility is only open an average of 35 hours per week, the least of all town facilities. In general, facilities with energy intensive operations that rely on large amounts of electricity – indoor ice rinks and pools – are the most expensive to operate.

During the period from 2011-2018, Energy efficiency measures, including energy efficient new construction, have reduced potential energy costs by approximately \$170,000 per year. These measures are described in greater detail in section 5.3.

4.3 Corporate Emissions

In 2018, the Town generated 3,890 tonnes of CO₂ equivalents (tCO₂e). Nearly half of all emissions were associated with facilities (49%), with fleet emissions making up the next largest source at 33%. All transportation related emissions, including employee commutes constitute just over 50% of Town emissions, despite making up only 33% of energy consumption. This is a result of the relative carbon intensity of gasoline and diesel.

Figure 8. 2018 GHG Emissions by Sector and Commodity



Annual emissions associated with Town operations have increased by 8% during the period from 2011-2018, from 3,600 tCO₂e to 3,890 tCO₂e – an increase of 290 tCO₂e. Despite significantly increased energy use, emissions associated with Town facilities have increased by only 3% during this time – this is, in large part, due to the impact of the provincial coal phase out on emissions associated with the electricity grid, without which emissions in facilities would have increased by just over 30%.

As a result of the coal phase out and the installation of LEDs, emissions associated with Street lighting have decreased by 83%. From 2011-2017, emissions associated with fleet activities have increased by 27%, the largest increase of all sectors.

Table 7. Emissions by Commodity Comparison 2011-2018 (tCO₂e)

Source	2011	2018	Variance	% Change
Electricity	727	172	-556	-76%
Natural Gas	1,233	1,746	513	42%
Gasoline	1,031	1,230	198	19%
Diesel	393	467	74	19%
Biodiesel (B20)	80	64	-16	-20%
Biodiesel (B05)	137	212	76	55%
Total	3,600	3,890	290	8%

Table 8. Emissions by Sector Comparison 2011-2018 (tCO₂e)

Sector	2011	2018	Variance	% Change
Facilities	1,834	1,895	61	3%
Fleet	999	1,271	272	27%
Employee Commute	642	702	60	9%
Streetlighting	126	22	-104	-83%
Total	3,600	3,890	290	8%

While emissions from Town activities have increased by 3% from 2011 to 2017, during this time the Town undertook various renewable and low carbon energy projects. Four of the Town's facilities now have geothermal heating systems, two of which have been installed since 2011 (Acton Library and Halton Hills Library and Cultural Centre).

In addition, through the local distribution company, Halton Hills Hydro, the Town has installed three solar arrays on Town facilities (Mold-Masters SportsPlex, Acton Arena, and the Robert C. Austin Operations Centre). Because these panels generate carbon neutral energy during the day, when average carbon intensity for the Ontario grid is highest, they offset emissions at a higher rate than the grid average tCO₂e/kWh. As a result, they reduce emissions associated with energy production by approximately 427 tCO₂e per year. If these offsets are considered as part of the emissions reductions from Town activities, the Town has reduced emissions by 4% from 2011 levels. The relative contribution of different factors to the change in emissions between 2011 and 2018 can be seen in Figure 11. Figure 12 shows the trajectory of Town emissions over the 2011-2018 period with and without offsets from renewable energy generation.

Figure 9. 2011-2018 Emission Trend by Commodity

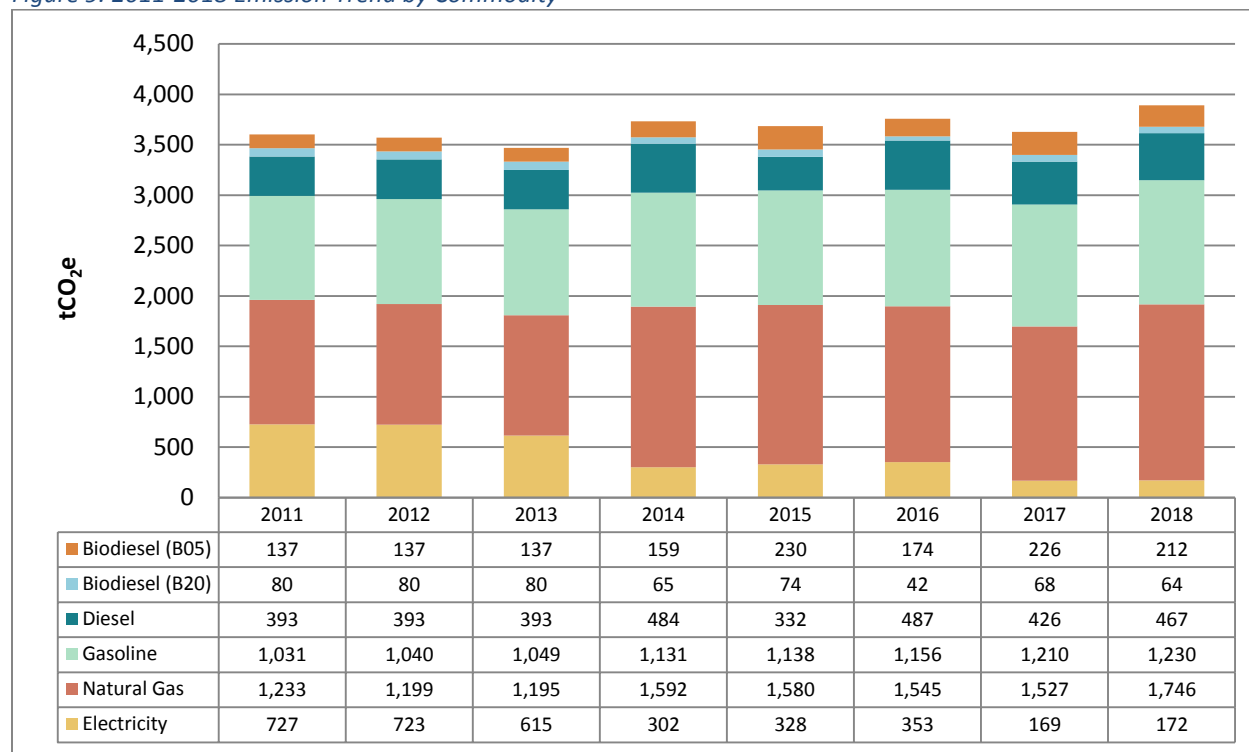


Figure10. 2011-2018 Emission Trend by Sector

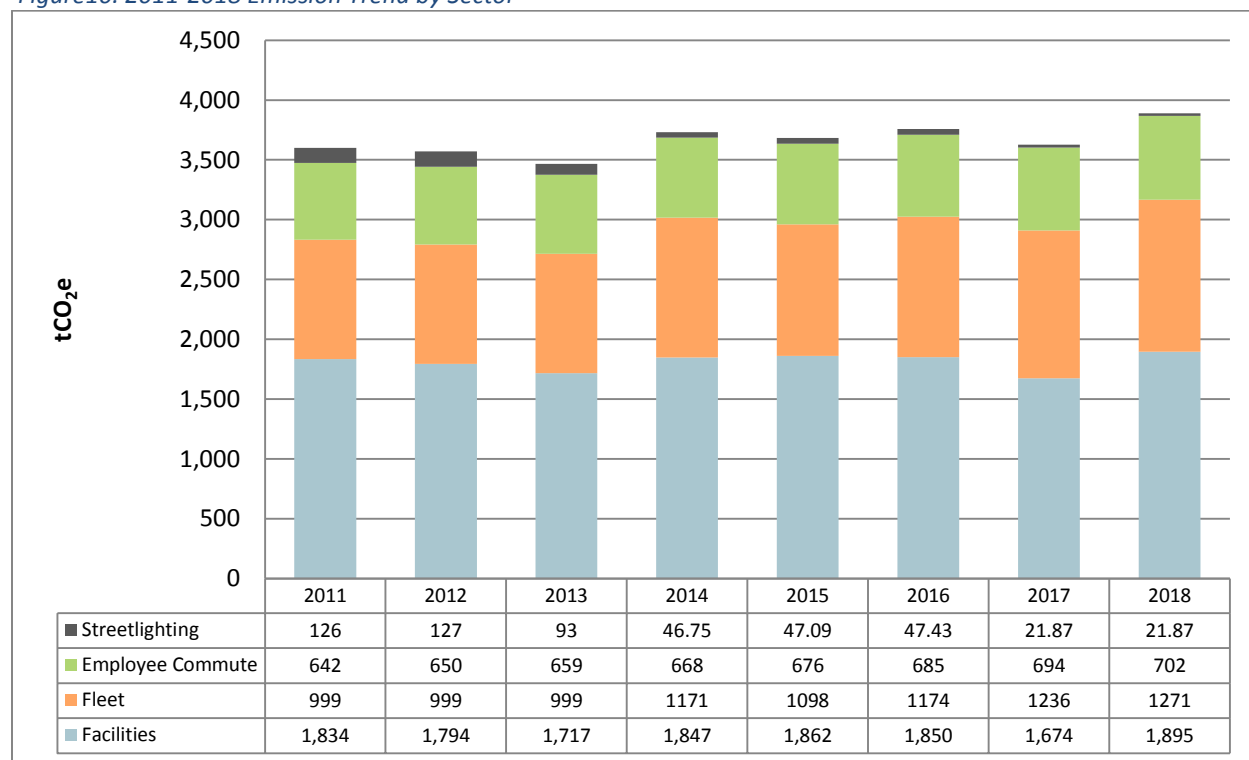


Figure 11. Factors Contributing to Change in Emissions 2011-2018

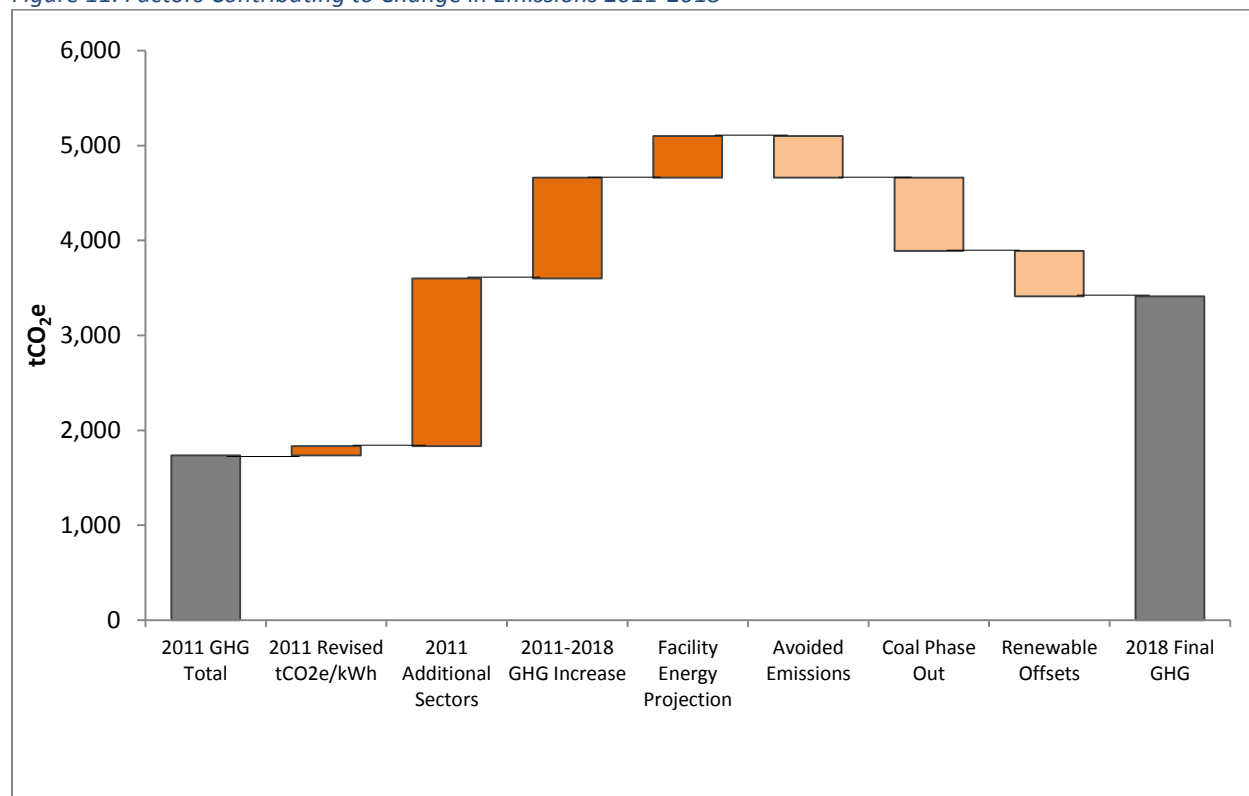
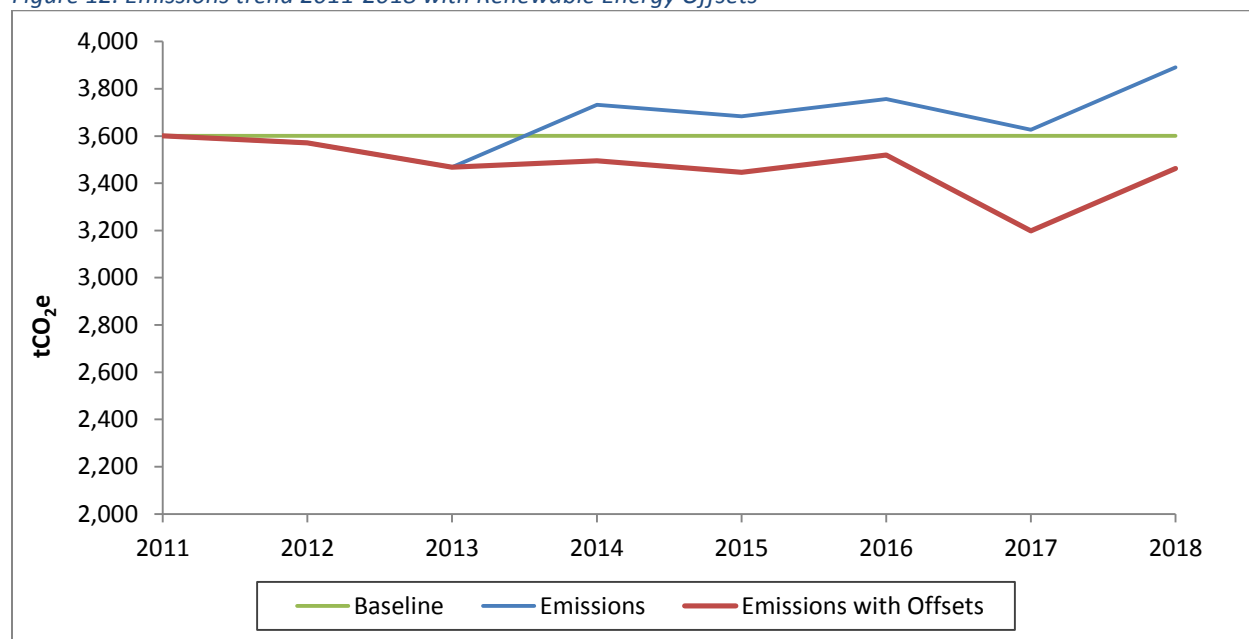


Figure 12. Emissions trend 2011-2018 with Renewable Energy Offsets



5. 2014 Plan Implementation Assessment

5.1 Stakeholder Engagement

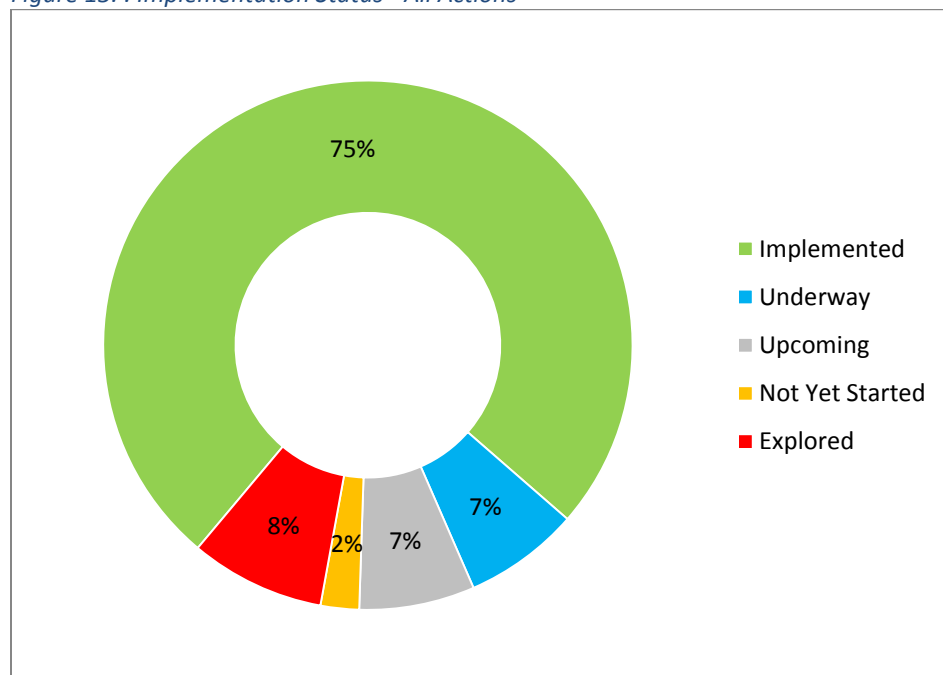
The implementation of the Corporate Energy Management Plan has been the responsibility of the Office of Sustainability alongside the Corporate Energy Management Team (CEMT). The CEMT includes members from relevant Town divisions, including the facilities manager, the fleet manager, representatives from purchasing, asset management, libraries, transportation, and fire as well as Halton Hills Hydro. The members of this team set annual priorities for plan implementation and track the completion of projects.

In addition, the Office of Sustainability reports annually on facility energy use through the reporting standards initially established in the Green Energy Act and currently contained in the Electricity Act. The Town has also recently completed the 2018 80BY50 report which includes updates on the state of implementation of the Corporate Energy Plan. This report, alongside the annual facility reporting is available to the public.

5.2 Overview of Implementation

The Town recently conducted a study on the progress towards implementing the 2014 Corporate Energy Plan, alongside the adoption of a new set of emissions reduction targets. The 80BY50 report includes a detailed overview of actions implemented since the development of the 2014 plan. Since that report was completed, a number of additional actions have been completed or undertaken. Figure 13, below, summarizes current progress towards plan implementation.

Figure 13. . Implementation Status - All Actions



Over 80% of the actions developed through the 2014 Corporate Energy Plan are either completed or underway. A further 9% are upcoming or not started, while only 8% were explored but found to be unfeasible, either due to financial limitations, technical challenges, or changing circumstances that rendered them no longer relevant.

Figure 14. Implementation Status - Priority Actions

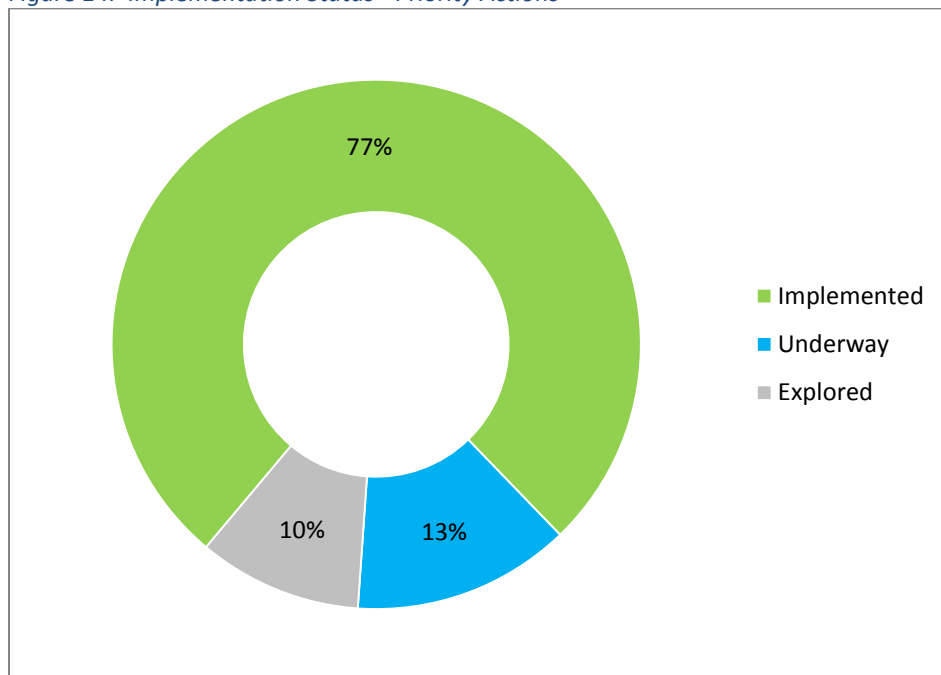
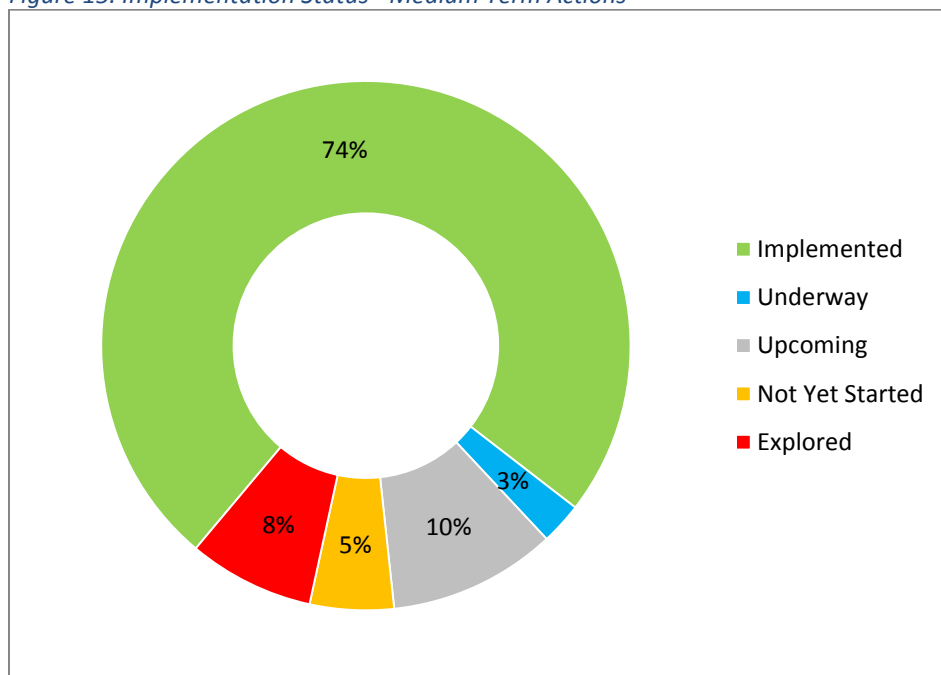
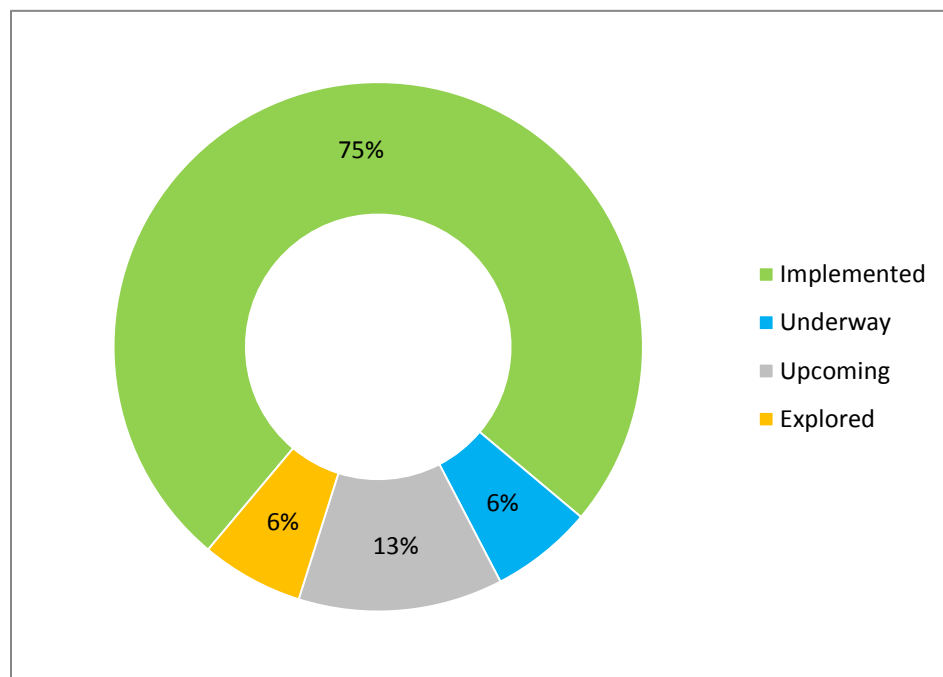


Figure 15. Implementation Status - Medium Term Actions



The 2014 Plan broke actions down into priority actions (figure 14), medium-term actions (figure 15), and long-term actions (figure 16). Of the priority actions, all actions are either complete, ongoing/underway, or have been explored and will not be undertaken during this plan period. Medium-term is the only category with actions that have not been started, with 5% of all medium term actions not initiated on any level yet, with a further 10% planned to be undertaken in 2019.

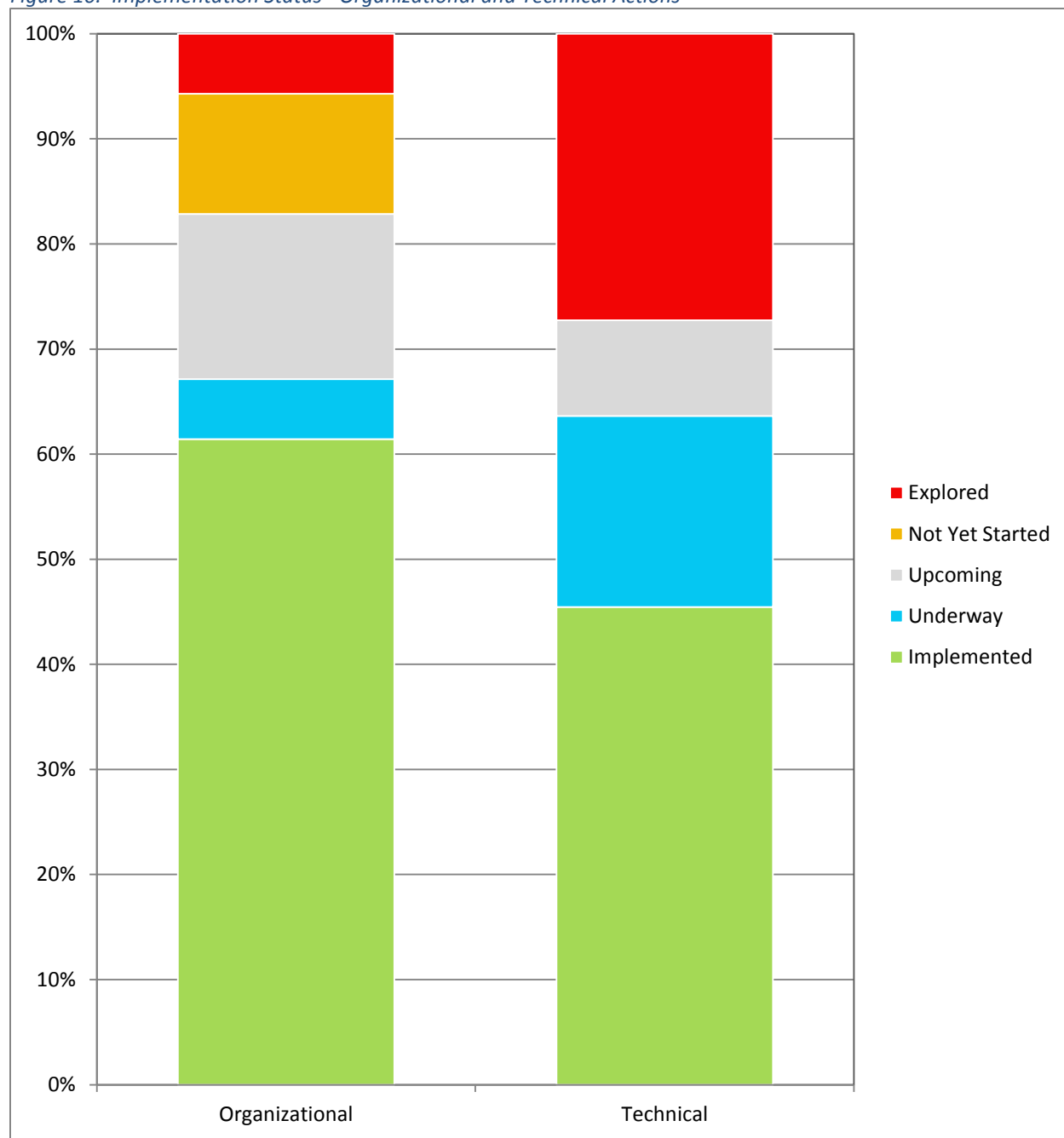
Figure 9. Implementation Status - Long-Term Actions



Of the long-term actions 13% are upcoming in 2019, many of which relate to tasks necessary to evaluate and update the 2014 plan. This report completes a number of those actions.

All actions in the 2014 plan have been categorized as either technical or organizational, depending on whether they relate to specific technical measures aimed at increasing efficiency of facilities and vehicles, or relate to changes within the processes and organizational structures of the Town. This breakdown of actions, shown in figure 17 below, suggests that the Town has been successful at building the organizational structures necessary to manage energy use, with over 80% of organizational actions complete, underway, or upcoming. Technical actions have been more challenging, as almost 30% of technical actions recommended in the 2014 have been explored but could not be implemented for various reasons. For example, heat recovery ventilators were found to be incompatible with the operation of the ventilation system at Gellert Community Centre, while implementation plug load reduction measures for IT equipment were determined to be an inefficient use of limited resources.

Furthermore, these technical actions often group specific interventions across multiple facilities. For example, air sealing measures were recommended at all Town facilities, but were only undertaken at one building. So the number of technical actions either explored or not yet started would likely be higher if those actions were broken out individually.

Figure 10. Implementation Status - Organizational and Technical Actions

5.3 Quantification of actions and methodology

As discussed in the previous section, many of the actions undertaken through the 2014 iteration of the Corporate Energy Plan were organizational changes necessary to embed energy management within Town operations and improve capacity to analyze and manage energy use. As a result, many of the actions undertaken through the plan did not directly contribute to energy conservation or emissions reductions.

Of the actions that were undertaken with a direct impact on energy and emissions, it is challenging to disaggregate the impact of individual actions from overall energy use trends. This report has nevertheless sought to quantify the relative contributions of specific action types to the overall energy trends discussed in section 4. For this purpose, impacts have been allocated to three categories:

1. Energy efficient new construction
2. Retrofits and operations changes in existing buildings
3. Renewable energy projects

Table 10 quantifies the relative contribution of those three action types to energy and emissions trends observed in Town facilities. In two cases, Acton Arena and Mold-Masters SportsPlex, energy efficiency measures in major expansions have been initiated alongside efficiency measures throughout the existing floor space. In both cases, energy and emissions impacts associated with those facilities have been allocated to the 'energy efficient new construction' category. It should be noted that these are instructive estimates of energy impacts rather than the results of robust monitoring and verification processes and should be used with caution.

Table 10. Relative contribution of action types to energy trends (2011-2018)

Action Type	Energy (ekWh)	Emissions (tCO ₂ e)	Cost (\$)
Energy Efficient New Construction	-2,480,025	-37	-48,192
Retrofits and operations changes in existing buildings	-390,077	-398	-130,144
Renewable energy projects	-1,212,160	-478	na
Total	-4,082,262	-913	-178,337

5.4 Implementation Partners and Funding Mechanisms

Implementation of the Corporate Energy Plan was completed through the Town's capital and operating budgets. New construction projects have been funded in part through the charitable contributions of businesses operating in the Town. Halton Hills Hydro has been a key partner

throughout the implementation period and has assisted with the implementation of renewable energy projects, streetlighting conversions, and has provided input on plan implementation through the Corporate Energy Management Team.

6. 2019 CORPORATE ENERGY PLAN UPDATE

Ontario's broader public sector organizations are required to develop and publish an Energy Conservation and Demand Management (ECDM) Plan every five years. As a companion to this report, the Town has developed an update to the 2014 Corporate Energy Plan. The 2020-2025 Corporate Energy Plan will be published alongside this report.

The 2020-2025 Corporate Energy Plan goes beyond the regulatory requirement in outlining the approach to achieving a low-carbon vision by developing four connected foundational strategies:

1. Portfolio Energy Optimization to minimize facility energy consumption while upgrading buildings and maintaining or improving occupant comfort;
2. Renewable/Low-Carbon Energy Procurement to increase the Town's use of renewable energy;
3. Low-Carbon Mobility to address emissions resulting from the Town's vehicle fleet and employee commuting; and
4. Low-Carbon Financial Strategy aimed at developing a comprehensive funding approach to fully enable the Plan's implementation.

Figure 15. Four Strategies of the 2019-2025 Corporate Energy Plan

